

Attorney's Docket No. K&A 00-1335
Client's Docket No. SAM1092

APPLICATION

FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT I, **WALTER E. BONIN**, a citizen of
UNITED STATES OF AMERICA, have invented a new and useful
POWER GENERATOR of which the following is a specification:

POWER GENERATOR

5

BACKGROUND OF THE INVENTION

Field of the Invention

10

The present invention relates to turbine generator apparatuses and more particularly pertains to a new power generator for allowing a user to provide electrical power to roadway lights in remote areas.

15

Description of the Prior Art

20

The use of turbine generator apparatuses is known in the prior art. More specifically, turbine generator apparatuses heretofore devised and utilized are known to consist basically of familiar, expected and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which have been developed for the fulfillment of countless objectives and requirements.

25

Known prior art includes U.S. Patent No. 6,016,015; U.S. Patent No. 5,225,712; U.S. Patent No. 5,203,746; U.S. Patent No. 4,244,750; U.S. Patent No. 4,184,894; U.S. Patent No. Des. 252,572; and U.S. Patent No. 4,472,291.

While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not disclose a new power generator. The inventive device includes a base assembly that has a lower portion and an upper portion. The lower portion is adapted for resting on a support surface. The lower portion is for supporting the upper portion of the base assembly. A solar assembly is coupled to the upper portion of the base assembly. The solar assembly is adapted for collecting solar radiation and converting the solar radiation into electricity. A power storage assembly is operationally coupled to the solar assembly. The power storage assembly is adapted for storing electricity from the solar assembly. The power storage assembly is positioned within the lower portion of the base assembly such that the lower portion of the base assembly is adapted for protecting the power storage assembly from adverse weather. A turbine assembly is coupled to the upper portion of the base assembly. The turbine assembly is adapted for producing electricity from wind. The turbine assembly is operationally coupled to the power storage assembly such that the power storage assembly is adapted for storing electricity produced from the turbine assembly.

In these respects, the power generator according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of allowing a user to provide electrical power to roadway lights in remote areas.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of turbine generator apparatuses now present in the prior art,

the present invention provides a new power generator construction wherein the same can be utilized for allowing a user to provide electrical power to roadway lights in remote areas.

5 The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new power generator apparatus and method which has many of the advantages of the turbine generator apparatuses mentioned heretofore and many novel features that result in a new power generator which is not
10 anticipated, rendered obvious, suggested, or even implied by any of the prior art turbine generator apparatuses, either alone or in any combination thereof.

 To attain this, the present invention generally comprises a
15 base assembly that has a lower portion and an upper portion. The lower portion is adapted for resting on a support surface. The lower portion is for supporting the upper portion of the base assembly. A solar assembly is coupled to the upper portion of the base assembly. The solar assembly is adapted for collecting solar
20 radiation and converting the solar radiation into electricity. A power storage assembly is operationally coupled to the solar assembly. The power storage assembly is adapted for storing electricity from the solar assembly. The power storage assembly is positioned within the lower portion of the base assembly such that
25 the lower portion of the base assembly is adapted for protecting the power storage assembly from adverse weather. A turbine assembly is coupled to the upper portion of the base assembly. The turbine assembly is adapted for producing electricity from wind. The turbine assembly is operationally coupled to the power storage
30 assembly such that the power storage assembly is adapted for storing electricity produced from the turbine assembly.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence

of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

5

It is therefore an object of the present invention to provide a new power generator apparatus and method which has many of the advantages of the turbine generator apparatuses mentioned heretofore and many novel features that result in a new power generator which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art turbine generator apparatuses, either alone or in any combination thereof.

10

It is another object of the present invention to provide a new power generator, which may be easily and efficiently manufactured and marketed.

15

It is a further object of the present invention to provide a new power generator, which is of a durable and reliable construction.

20

An even further object of the present invention is to provide a new power generator which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such power generator economically available to the buying public.

25

Still yet another object of the present invention is to provide a new power generator, which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

30

Still another object of the present invention is to provide a new power generator for allowing a user to provide electrical power to roadway lights in remote areas.

5

Yet another object of the present invention is to provide a new power generator, which includes a base assembly that has a lower portion and an upper portion. The lower portion is adapted for resting on a support surface. The lower portion is for
10 supporting the upper portion of the base assembly. A solar assembly is coupled to the upper portion of the base assembly. The solar assembly is adapted for collecting solar radiation and converting the solar radiation into electricity. A power storage assembly is operationally coupled to the solar assembly. The power
15 storage assembly is adapted for storing electricity from the solar assembly. The power storage assembly is positioned within the lower portion of the base assembly such that the lower portion of the base assembly is adapted for protecting the power storage assembly from adverse weather. A turbine assembly is coupled to
20 the upper portion of the base assembly. The turbine assembly is adapted for producing electricity from wind. The turbine assembly is operationally coupled to the power storage assembly such that the power storage assembly is adapted for storing electricity produced from the turbine assembly.

25

Still yet another object of the present invention is to provide a new power generator that would enable remote areas of interstate highways to be illuminated, thereby improving safety and reducing accidents.

30

Even still another object of the present invention is to provide a new power generator that would be of a self-contained design that would make it easier to setup than other systems.

5 These together with other objects of the invention, along with the various features of novelty, which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained
10 by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

15 The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

20 Figure 1 is a side view of a new power generator according to the present invention.

 Figure 2 is a top view of the present invention.

25 Figure 3 is an exploded view of the present invention.

 Figure 4 is a side view of the present invention.

30 Figure 5 is a side view of the present invention.

 Figure 6 is a side view of the present invention.

 Figure 7 is a side view of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to
5 Figures 1 through 7 thereof, a new power generator embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

As best illustrated in Figures 1 through 7, the power generator
10 10 generally includes a base assembly 12 that has a lower portion 14 and an upper portion 16. The lower portion 14 is adapted for resting on a support surface 18. The lower portion 14 is for supporting the upper portion 16 of the base assembly 12. A solar
15 12. The solar assembly 20 is coupled to the upper portion 16 of the base assembly 12. The solar assembly 20 is adapted for collecting solar radiation and converting the solar radiation into electricity. A power storage assembly 22 is operationally coupled to the solar assembly 20. The power storage assembly 22 is adapted for storing electricity from the solar assembly 20. The power storage assembly 22 is positioned
20 with in the lower portion 14 of the base assembly 12 such that the lower portion 14 of the base assembly 12 is adapted for protecting the power storage assembly 22 from adverse weather. A turbine assembly 24 is coupled to the upper portion 16 of the base assembly 12. The turbine assembly 24 is adapted for producing electricity
25 from wind. The turbine assembly 24 is operationally coupled to the power storage assembly 22 such that the power storage assembly 22 is adapted for storing electricity produced from the turbine assembly 24.

30 The base assembly 12 has a junction portion 26. The junction portion 26 is positioned between the lower portion 14 and

the upper portion 16. The junction portion 26 is rotatably coupled to the lower portion 14 of the base assembly 12 such that the junction portion 26 is rotatable with respect to the lower portion 14 of the base assembly 12. The upper portion 16 is pivotally coupled to the junction portion 26 such that the upper portion 16 pivots with respect to the junction portion 26. The junction portion 26 is adapted for permitting the solar assembly 20 to be directed towards the sun. The junction portion 26 is adapted for permitting the turbine assembly 24 to be directed into the wind.

A processing assembly 28 is operationally coupled to the junction portion 26 of the base assembly 12. The processing assembly 28 is for effecting rotation of the junction portion 26 with respect to the lower portion 14 of the base assembly 12 and pivoting of the upper portion 16 with respect to the junction portion 26 when the solar assembly 20 is to be directed towards the sun and the turbine assembly 24 is to be directed into the wind.

The solar assembly 20 includes a plate portion 30. The plate portion 30 is coupled to the upper portion 16 of the base assembly 12. The solar assembly 20 includes a plurality of solar cells 32. Each of the solar cells 32 is positioned on an upper surface 34 of the plate portion 30. Each of the solar cells 32 is adapted for converting solar radiation into electricity. Each of the solar cells 32 is operationally coupled to the power storage assembly 22 such that the power storage assembly 22 stores electricity from each the solar cells 32.

The turbine assembly 24 includes a head assembly 36 and a stanchion 38. The stanchion 38 is coupled to the upper portion 16

of the base assembly 12 such that the stanchion 38 upwardly extends from the solar assembly 20. The head assembly 36 is rotatably coupled to the stanchion 38 opposite the base assembly 12. The head assembly 36 is adapted to be rotated with respect to the stanchion 38 of the turbine assembly 24 when the head assembly 36 is directed into the wind. The turbine assembly 24 has a shroud sleeve 40. The shroud sleeve 40 upwardly extends from the solar assembly 20. The shroud sleeve 40 has a lumen 42 such that the stanchion 38 extends through the lumen 42 of the shroud sleeve 40. The stanchion 38 is retractable with the shroud sleeve 40 such that the head assembly 36 is retractable into the lumen 42 of shroud sleeve 40 for protecting the head assembly 36 from adverse weather.

The head assembly 36 includes a pair of blades 44. Each of the blades 44 is coupled to a shaft 46. One of the blades 44 diametrically extends away from the other of the blades 44. Each of the blades 44 has an airfoil cross-section such that the wind strikes the blades 44 and forces the blades 44 into rotary motion thereby rotating the shaft 46. The shaft 46 is operationally coupled to a generator 48.

The blades 44 include a first blade 50 and a second blade 52. The first blade 50 is coupled to the shaft 46. The second blade 52 has a collar 54. The collar 54 has an aperture 56 such that the aperture 56 of the collar 54 is for receiving the shaft 46. The collar 54 has a cut out 58. The cut out 58 receives the first blade 50 when the second blade 52 is positioned diametrically to the first blade 50 such that the blades 44 are balanced when the blades 44 are rotated by the wind. The collar 54 of the second blade 52

permits rotation of the second blade 52 adjacent to the first blade 50 for facilitating storage of the head assembly 36.

In an embodiment the head assembly 36 of the turbine assembly 24 has a plurality of vanes 60. Each of the vanes 60 extends between a pair of annular rings 62. Each of the annular rings 62 is coupled to the stanchion 38 such that the vanes 60 are spaced around the stanchion 38. Each of the vanes 60 is adapted for catching the wind for rotating the annular rings 62 such that rotation of the annular rings 62 rotates the stanchion 38. The stanchion 38 is coupled to a generator 48. The generator 48 is adapted for producing electricity when the wind strikes the blades 44 and rotates the shaft 46.

Each of the vanes 60 includes a flexible material. The flexible material of each of the vanes extends parallel to a longitudinal axis of the stanchion 38 such that the flexible material of the vanes 60 is adapted for flexing and catching the wind for rotating the annular rings 62 and the stanchion 38.

The annular rings 62 have an extended position. The extended position of the annular rings 62 stretches the vanes 60 vertically such that the vanes 60 are prevented from flexing and catching the wind for minimizing rotation of the annular rings 62 and the stanchion 38. The annular rings 62 have a deployed position. A distance between the annular rings 62 is less than a length of each of the vanes 60 when the annular rings 62 are in the deployed position such that the vanes 60 are adapted for flexing and catching the wind for turning the annular rings 62 and the stanchion 38.

A light stanchion 64 can be operationally coupled to the turbine generator 48 apparatuses for supplying power to the light stanchion 64 in remote locations.

5

In use, the present invention would allow a user to provide lights in a remote area. The lights would be powered either by the wind generator or the photovoltaic cells.

10

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

15

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

20

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

30